



# The CMIP5 Data Archive in IPCC AR5

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# AR4 Data Management

- ▶ AR4 DM for IPCC WG I has been performed by PCMDI within CMIP 3
- ▶ AR4 DM for WG II + III has been performed by BADC and WDCC within the IPCC DDC
- ▶ Main drawbacks:
  - Different data sources were used in the IPCC AR4 (CMIP 3 in WG I, IPCC TAR still in WG II + III)
  - Field based data access only for the subset of time series in the IPCC DDC (monthly means of surface climatology)
  - No reference data archive has been conserved in AR4 except IPCC DDC

# PCMDI AR4 data catalogue

WCRP CMIP3 Multi-Model Database - Catalog Output - Mozilla Firefox

https://esg.llnl.gov:8443/metadata/browseCatalog.do?uri=htt...

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### IPCC 4th Assessment Report

#### Related Links

- documentation: IPCC 4th Assessment Report
- Climate Modeling metadata

#### Referenced Catalogs

- Model: bcc\_cm1, Experiment: 1%/year CO2 increase experiment (to doubling) (1pctto2x)
- Model: bcc\_cm1, Experiment: 1%/year CO2 increase experiment (to quadrupling) (1pctto4x)
- Model: bcc\_cm1, Experiment: 550 ppm stabilization experiment (sresb1)
- Model: bcc\_cm1, Experiment: AMIP experiment (amip)
- Model: bcc\_cm1, Experiment: Climate of the 20th Century experiment (20c3m)
- Model: bcc\_cm1, Experiment: Present-day control experiment (pdctrl)
- Model: bcc\_cm1, Experiment: SRES A2 experiment (sresa2)
- Model: bccr\_bcm2\_0, Experiment: 1%/year CO2 increase experiment (to doubling) (1pctto2x)
- Model: bccr\_bcm2\_0, Experiment: 550 ppm stabilization experiment (sresb1)
- Model: bccr\_bcm2\_0, Experiment: 720 ppm stabilization experiment (sresa1b)
- Model: bccr\_bcm2\_0, Experiment: Climate of the 20th Century experiment (20c3m)
- Model: bccr\_bcm2\_0, Experiment: Committed climate change experiment (commit)

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esg.llnl.gov:8443



# PCMDI AR4 file-based data access

WCRP CMIP3 Multi-Model Database - Catalog Output - Mozilla Firefox

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe


https://esg.llnl.gov:8443/metadata/browseCatalog.do?uri=htt

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Model: mpi\_echam5, Experiment: 720 ppm stabilization experiment (sresa1b), Run 1 monthly data

**Related Links**

 [Climate Modeling metadata](#)

**Download Files**

To download files on **DISK**, simply click on the link. To download files on remote storage (**HPSS**, **MSS**), select them and then proceed to [download](#).

1-50 of 139 datafiles | [next >](#)

Datafile	Metadata	Format	Type	Size	Download
1. cl_A1_2001-2025.nc		NetCDF	gridded	707809120	<input type="checkbox"/> LLNL HRM
2. cl_A1_2026-2050.nc		NetCDF	gridded	707809120	<input type="checkbox"/> LLNL HRM
3. cl_A1_2051-2075.nc		NetCDF	gridded	707809120	<input type="checkbox"/> LLNL HRM
4. cl_A1_2051-207t.nc		NetCDF	gridded	707809120	<input type="checkbox"/> LLNL HRM
5. cl_A1_2101-2125.nc		NetCDF	gridded	707809120	<input type="checkbox"/> LLNL HRM
6. cl_A1_2126-2150.nc		NetCDF	gridded	707809120	<input type="checkbox"/> LLNL HRM
7. cl_A1_2151-2175.nc		NetCDF	gridded	707809120	<input type="checkbox"/> LLNL HRM
8. cl_A1_2176-2200.nc		NetCDF	gridded	707809120	<input type="checkbox"/> LLNL HRM
9. clivi_A1.nc		NetCDF	gridded	177014088	<input type="checkbox"/> LLNL HRM
10. clt_A1.nc		NetCDF	gridded	177014060	<input type="checkbox"/> LLNL HRM
11. clwvi_A1.nc		NetCDF	gridded	177014168	<input type="checkbox"/> LLNL HRM

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esg.llnl.gov:8443

# IPCC DDC AR4 data list

IPCC-DDC: SRES-AR4 GCM data - Mozilla Firefox

http://www.mad.zmaw.de/IPCC\_DDC/html/SRES\_AR4/index.html

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**Status of data : August 2006**  
For correction and replacement of data sets please look at the [erata page](#) of PCMDI

Center	Center Acronym	Model	COM-MIT	PI-cntrl	20C3M	A2	A1B	B1	1%-2X	1%-4X	add. data
Beijing Climate Center China	BCC	CM1			run_1	run_1			run_1	run_1	
Bjerknes Centre for Climate Research Norway	BCCR	BCM2.0	run_1	run_1	run_1	run_1		run_1			
Canadian Center for Climate Modelling and Analysis Canada	CCCma	CGCM3 (T47 resolution)	run_1	run_1	run_1	run_1	run_1	run_1	run_1	run_1	
		CGCM3 (T63 resolution)			run_1		run_1	run_1	run_1		
Centre National de Recherches Meteorologiques France	CNRM	CM3	run_1	run_1	run_1	run_1	run_1	run_1	run_1	run_1	
Australia's Commonwealth Scientific and Industrial Research Organisation Australia	CSIRO	Mk3.0	run_1	run_1	run_1	run_1	run_1	run_1	run_1		
Max-Planck-Institut for Meteorology Germany	MPI-M	ECHAM5-OM	run_1	run_1	run_1	run_1	run_1	run_1	run_1	run_1	compl. set of md
Meteorological Institute, University											

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# IPCC DDC AR4 data catalogue summary

**CERA - entry information for EH5\_MPI\_OM\_SRESA1B\_1 - Mozilla Firefox**

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

[http://cera-www.dkrz.de/WDCC/ui/Compact.jsp?acronym=EH5\\_M](http://cera-www.dkrz.de/WDCC/ui/Compact.jsp?acronym=EH5_M) Google

CIS RT M&D LEO EnglishGerman Di... WetterOnline eBay Deutschland idealo.de digitalkamera.de

**Always quote citation when using data!**

**Metadata for CERA experiment 'EH5\_MPI\_OM\_SRESA1B\_1'**

**Title**  
IPCC DDC AR4 ECHAM5/MPI-OM SRESA1B run1

**Citation**  
Roekner, 2005: IPCC DDC AR4 ECHAM5/MPI-OM SRESA1B run1. CERA-DB "EH5\_MPI\_OM\_SRESA1B\_1", [http://cera-www.dkrz.de/WDCC/ui/Compact.jsp?acronym=EH5\\_MPI\\_OM\\_SRESA1B\\_1](http://cera-www.dkrz.de/WDCC/ui/Compact.jsp?acronym=EH5_MPI_OM_SRESA1B_1)

**Creation Date**  
2005-06-21

**Summary**  
These data represent monthly averaged values of selected variables for the Data Distribution Centre (DDC) of the Intergovernmental Panel on Climate Change (IPCC). (see also <http://ipcc-ddc.cru.uea.ac.uk/>)  
The model output prepared for IPCC Fourth Assessment SRES A1B experiment.  
For this experiment there are 3 ensemble runs available.

For model output data in higher temporal resolution and more variables visit the web page <https://esg.llnl.gov:8443/home/publicHomePage.do>.

**Location(s)**  
World (global); Latitude: -90.0 to 90.0; Longitude: 0.0 to 360.0

**Spatial Coverage**  
Latitude: -90.0 to 90.0; Longitude: 0.0 to 360.0; Altitude: 0.0 m to 200.0 hPa

**Temporal Coverage**  
16/1/2001 - 16/12/2200 (calendrical)

**Data Format(s)**  
GRIB netCDF netCDF records compressed

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# IPCC DDC AR4 field-based data access

**CERA - entry information for EH5\_MPI\_OM\_SRESA1B\_1 - Mozilla Firefox**

File Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

http://cera-www.dkrz.de/WDCC/ui/Compact.jsp?acronym=EH5\_M Google

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**Additional info**  
Additional information for this CERA experiment is available [here](#). **Full CERA metadata**

**Available Datasets**

	Name	Progress
<input type="checkbox"/>	MPEH5_SRA1B_1_G_orog: surface altitude	complete, review pending
<input type="checkbox"/>	MPEH5_SRA1B_1_G_pr: total precipitation	complete, review pending
<input type="checkbox"/>	MPEH5_SRA1B_1_G_psl: sea level pressure	complete, review pending
<input type="checkbox"/>	MPEH5_SRA1B_1_G_rsds: surface downwelling shortwave radiation	complete, review pending
<input type="checkbox"/>	MPEH5_SRA1B_1_G_sftgif: fraction of grid cell covered with glacier	complete, review pending
<input type="checkbox"/>	MPEH5_SRA1B_1_G_sftlf: land area fraction	complete, review pending
<input type="checkbox"/>	MPEH5_SRA1B_1_G_tas: 2m surface air temperature	complete, review pending
<input type="checkbox"/>	MPEH5_SRA1B_1_G_uas: zonal surface wind speed	complete, review pending
<input type="checkbox"/>	MPEH5_SRA1B_1_G_vas: meridional surface wind speed	complete, review pending
<input type="checkbox"/>	MPEH5_SRA1B_1_N_pr: total precipitation	in work
<input type="checkbox"/>	MPEH5_SRA1B_1_N_psl: sea level pressure	in work
<input type="checkbox"/>	MPEH5_SRA1B_1_N_rsds: surface downwelling shortwave radiation	in work
<input type="checkbox"/>	MPEH5_SRA1B_1_N_tas: 2m surface air temperature	in work

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# IPCC DDC AR4 data products

IPCC-DDC: Model output described in the 2007 IPCC Fourth Assessment Report (SRES scenarios), multi-year means - Mozilla Firefox

http://www.ipcc-data.org/ar4/gcm\_data.html

IPCC-Model output described in...

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE  
The IPCC Data Distribution Centre

IPCC

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DDC Home Page

About the DDC

Climate observations

Climate models

Socio-economic data

Environmental data and Scenarios

Supporting material

Related Links

Other assessment reports

SAR (1995): IS92 scenarios

TAR (2001): SRES scenarios

Visualisation

Introduction

Data Visualisation

Publications

IPCC AR4

All IPCC Reports

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Model output described in the 2007 IPCC Fourth Assessment Report (SRES scenarios), multi-year means

Location: DDC Home > Models: Summary Data > AR4 (2007): SRES scenarios

The table below lists all of the models, scenarios and variables available for which climatologies are available. Each entry on the table links to a page which displays the data available for that model/scenario/variable.

You can also browse the file contents and download selections of data as spreadsheet files (comma-separated-variable [CSV] format) through the DDC file navigator.

Models	Scenarios	Variables
BCC:CM1[anomalies]	1PT02X[anomalies]	specific humidity[anomalies]
BCCR:BCM2[anomalies]	1PT04X[anomalies]	precipitation flux[anomalies]
CCCMA:CGCM3_1-T47[anomalies]	20C3M	air pressure at sea level[anomalies]
CCCMA:CGCM3_1-T63[anomalies]	COMMIT	surface downwelling shortwave flux in air[anomalies]
CNRM:CM3[anomalies]	PICTL	air temperature[anomalies]
CONUS:ECHO-G[anomalies]	SRA1B[anomalies]	air temperature daily max[anomalies]
CSIRO:MK3[anomalies]	SRA2[anomalies]	air temperature daily min[anomalies]
GFDL:CM2[anomalies]	SRB1[anomalies]	eastward wind[anomalies]
GFDL:CM2_1[anomalies]		northward wind[anomalies]
INM:CM3[anomalies]		
IPSL:CM4[anomalies]		
LAGG:FGOALS-G1_0[anomalies]		
MPIM:ECHAM5[anomalies]		
MRI:CGCM2_3_2[anomalies]		
NASA:GISS-AOM[anomalies]		
NASA:GISS-EH[anomalies]		
NASA:GISS-ER[anomalies]		

Additional Information

Definition of terms

What is a GCM?

Selecting scenarios

Constructing change fields

Reporting & consistency

Stochastic weather generators





## AR5 data management requirements from WG II + III

- ▶ Requirements for model data:
  - Data products are expected and not model raw data
  - Complete daily / sub-daily time series of individual variables, climate indices, climate extremes
- ▶ Requirements for metadata (browse + use):
  - Searchable data repository including information to decide on the usefulness of the data entity (e.g. experiment, model, variable, etc.) → METAFOR
  - Complete information to allow for data processing and use the model data (e.g. grid, variable, unit, time) → GRIDSPEC



# AR5 data management requirements from WG II + III

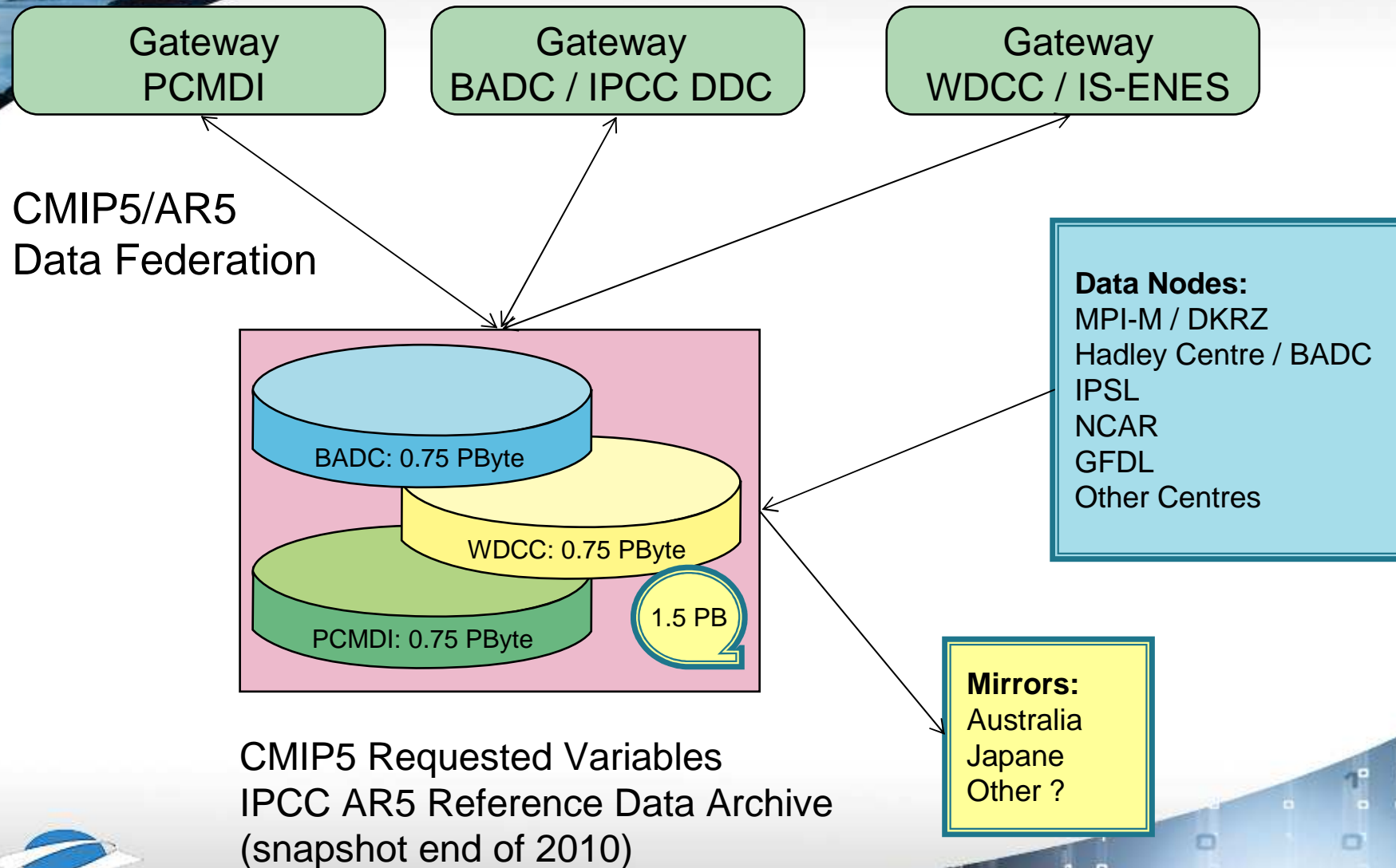
- ▶ Requirements for services:
  - Instructions how to use the data (guidance material)
  - Data processing options for aggregation and extraction in time and space and for visualization
  - Specific user support (FAQs and help desk / request tracker)



## AR5 data management concept

- ▶ Database for IPCC AR5 will be produced within CMIP5
- ▶ Range of estimates for amount of data for CMIP5 requested variables archive 0.6 – 1.2 PB (September 2009)
- ▶ Two different layers of data management are involved:
  - **Production and archive creation** within CMIP5 as scientific research data archive
  - **Permanent archiving** within IPCC Reference Data Archive which is presently the IPCC DDC (WDCC + BADC for GCM data + products)
- ▶ Memorandum of Understanding between BADC, PCMDI and WDCC/DKRZ to share data management responsibility for CMIP5 / IPCC AR5 (Dec. 2008)

# CMIP5/AR5 Data Management Concept





# IPCC AR5 Reference Data Archive

(Partly) open issues

- ▶ Sharing responsibilities within the CMIP5 /AR5 federation after taking the IPCC AR5 data snapshot
  - Continuation of CMIP5 scientific data archive
  - Permanent archiving of IPCC AR5 reference data archive and generation of application adapted data products
- ▶ Data products and services in IPCC DDC
  - 30 year means
  - Extremes
  - Field-based data access
  - Re-gridding of complex grids to regular lat-lon grid
  - Extraction of geographical subregions
  - Format conversion (Excel, GIS)
  - Visualisatuon
  - Guidance Material
  - FAQ and help desk
  - ..